



We work for your health!

On/Off valve for Laser and Diathermy exhaust



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Description On/Off valve

Description:

Medicvent On/Off valve regulates the suction for Laser/Diathermy smoke evacuation. The valve mounts on the holder for the sterile filter (LP10), that makes it easy to mount on pendels or OR tables (the holder is sold separately). The valve connects to outlet for evacuation and a sterile filter fits in the holder.

For connection on Laser or Diathermy knife there are complete sets with pre filter at Medicvent.

Function:

The valve opens and closes suction in the diathermy knife, this is regulated automatically with a sensor on the cable to the diathermy system (autostart box). On the autostart box front (page 6, pict 1) there are controls and indicators as explained below.

- LED, POWER ON. Lights up when the autostart box is connected to 230V.
- LED, SUCTION ON. Lights up when the autostart box opens the valve.
- Function selector, with positions ON-OFF-AUTO.
 - ON. Valve constantly open.
 - OFF. Valve constantly closed.
 - AUTO. Valve opens automatically when the diathermy knife is activated.
- Control DELAY TIME. To adjust the time that the valve will be open after the diathermy knife has been deactivated. Adjustable time is 2-20 sec and is only adjustable when AUTO is selected.

The autostart box is constructed to work with every known diathermy apparatus. A diathermy apparatus always consumes more current when the diathermy knife is activated then one in idle. The autostart box measures the diathermy apparatus current consumption and activates the On/Off valve when the current consumption exceeds adjusted value. The adjustment is done by a 20-turn potentiometer LEVEL on the autostart box back panel. (page 6, pict 2)

Change of the LP10-filter(main filter):

The filter must be changed 4 times/year, when in continuous use the filter must be changed more often.

To make it easy to remove the filter from the holder see page 6 pict 5.

Installation/adjustment

Installation:

Install the valve and autostart box as described on page 7.

The T-piece on the filter holder can be mounted in different ways to make the mounting vertical or horizontal (page 6, pict 4).

It is important that the tube from the filter and the cable from the diathermy knife is as parallel as possible to make work with knife and evacuation smooth.

Adjustment of the autostart box:

Mount device for calibration to the diathermy apparatus or make a tissue damp with sodium chloride solution and place it on the earth plate connected to the diathermy apparatus.

1. Connect the autostart box to 230 V. Diathermy apparatus main switch must be in off position. Only LED *POWER ON* shall be lit at this time. Check that the valve can be regulated with the *FUNCTION SELECTOR* in ON and OFF position and check that the LED *SUCTION ON* lights up when the valve opens. Leave selector in OFF position.
2. Position the control *DELAY TIME* on shortest time (max. counter clockwise). Position the *FUNCTION SELECTOR* in position AUTO, the valve must not open. Check that the valve opens when *LEVEL* is adjusted to lowest value (max. counter clockwise) and that the valve closes again when *LEVEL* is adjusted some degrees clockwise (0-0,5 revolutions). Leave *LEVEL* in that position.
3. Activate mains on diathermy apparatus and let the apparatus get warm to ensure that its current consumption has been stabilized. (1-2 min.) the LED *SUCTION ON* shall now be lit, that indicates that the autostart box sensed that the diathermy apparatus current consumption at idle overrides set value on *LEVEL*. Adjust *LEVEL* clockwise until *SUCTION ON* goes out. Adjust *LEVEL* counter clockwise a little to lit *SUCTION ON* and then a little clockwise so *SUCTION ON* goes out again. If *SUCTION ON* now will lit up, adjust *LEVEL* a bit clockwise until *SUCTION ON* goes out. Now let the diathermy apparatus be in ON position at least 5 minutes in idle (do not activate the diathermy knife). *SUCTION ON* must now be out and the valve closed. (This procedure is for finding the diathermy apparatus highest idle current consumption because some diathermy apparatus have a variable idle consumption). Then turn *LEVEL* one revolution further clockwise to decrease unwanted openings of the valve if mains or current consumption will vary.
4. Activate the diathermy knife (on the tissue) on lowest power (usually coagulation). *SUCTION ON* must now be lit and the valve open. If *SUCTION ON* does not lit up the *LEVEL* must be adjusted to a lower value, slightly counter clockwise. Be sure to check that the valve opens and closes when the knife activates and deactivates.

THE ADJUSTMENT OF THE AUTOSTART BOX IS NOW DONE. (Observe that the adjustment can be faulty if the *LEVEL* is adjusted to fast or if *DELAY TIME* not is in its lowest position counter clockwise while adjustment is done).

Matching of the autostart box sensitivity

The autostart box is designed to work with diathermy apparatus with current consumption up to 5 A. Sometimes current consumption on different diathermy apparatus may vary depending on make or model. That makes it necessary to adjust the autostart box internally to make it work. This can be necessary in cases when the diathermy apparatus current consumption is close to the autostart box limit value.

Description

Disconnect mains power 230V.

Take of the top half of the autostart box case by demounting four screws in bottom corners.

Turn the box over. Picture 3 on page 6 shows the internal of the box and points out actual measurings points. Connect to mains 230V.

OBSERVE! Parts of the apparatus is alive with 230V!

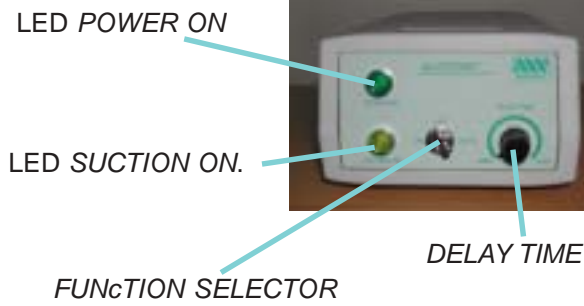
Follow the adjustment instructions on page 4 until point 3.

1. Connect the power meters negative probe to the voltage regulators heat sink and the positive probe (0-10 V DC) to measuring point SIGNAL LEVEL. The power meter shall now show a voltage that is equal to the diathermy apparatus consumption at idle. Adjust this to approximately 2 volt with the trimming potentiometer GAIN. (Observe that the voltage can vary some because of variation in power consumption of the diathermy apparatus).
2. Activate the diathermy knife. The voltage SIGNAL LEVEL shall now increase significantly as it relates to the power consumption in the diathermy apparatus when active. (Observe that this voltage also may vary as of variations in power consumption of the diathermy apparatus).
3. Check the voltage SIGNAL LEVEL a couple of times by means of changing between idle and activated diathermy knife. Note the highest measured voltage at idle and the lowest mesured voltage with activated diathermy knife. This difference in voltage must be more than 200 mV. If the difference in voltage is less than 200 mV shall the adjustment of GAIN be change until the differens in voltage is more than 200 mV. (The autostart box functionality increases the bigger the voltage difference is). After this adjustment may the voltage at idle be anything else than 2 V. Idle voltage can be allowed to be between approximately 0,5 V and 6,5 V, the importance with this adjustment is to find a value for GAIN witch gives enough difference between idle and active voltage.
4. Connect the power meters positive probe to measuring point TRESHOLD LEVEL. This voltage is depending of adjustment of 20-rev potentiometer LEVEL on the autostart box back panel. Adjust the voltage until it is between the two measured voltages in point 1 and 2 above. (if highest voltage at idle is 2,1 V and lowest voltage with activated diathermy knife är 3,5 V, adjust the voltage TRESHOLD LEVEL to 2,8 V).
5. Check that the autostart box is working in the desired order, the magnet valve in the box opens and closes when the diathermy knife activates.
6. Remount the top case of the box.

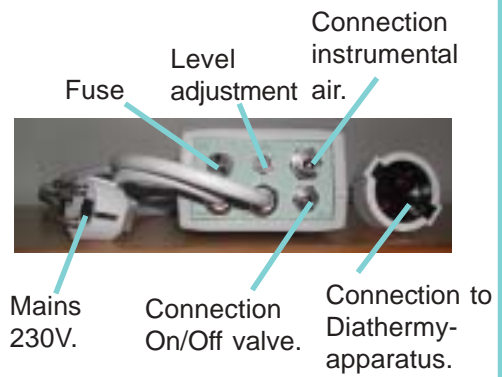
The matching of the autostart box sensitivity to the diathermy apparatus is finished.

Pictures

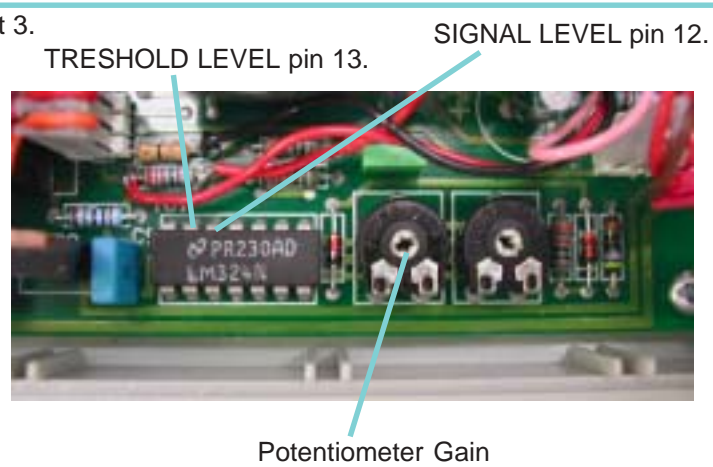
Pict 1.



Pict 2.



Pict 3.



Pict 4.

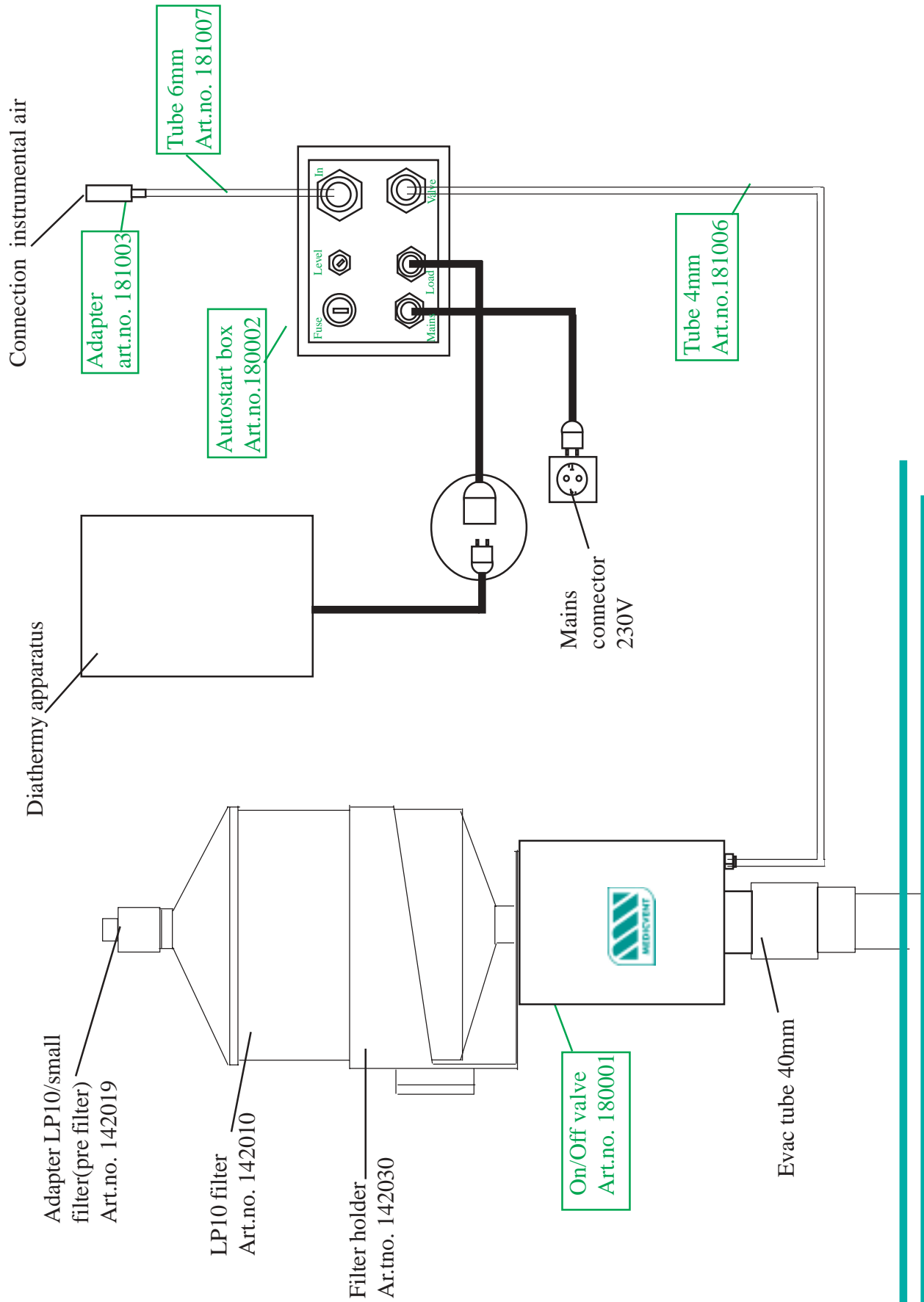


Pict 5.



Mounting

Parts marked with green colour is included in 180000 complete On/Off set.



Safety

On/Off valve

WARNING! Constitutes a risk for injury on patient and user. **ATT:** Attention, reference.

N.B! Constitutes a risk for damages to equipment. Only use components that MEDICVENT has delivered and/or approved.

Safety On/Off valve

- Only by MEDICVENT authorized personnel are allowed to perform adjustments or repairs on this equipment.
- Only MEDICVENT original parts may be used when repairing.

Technical

Autostart box

Power: 230V AC 1-phase $\pm 10\%$ max 5 A
Air connection: $\varnothing 6$ mm
Connection valve: $\varnothing 4$ mm
Dimensions (h*b*d): 65*98*208 mm

Length on mounted power cords.

Main power cord 240V: 2,0 m

Power cord to diathermy apparatus: 0,6 m

Cleaning: Wiping with disinfection solution.

On/Off valve

Working pressure: 40-80 psi
Dimensions (h* \varnothing): 114*96 mm
Connection male: 38,5 mm
Connection female: 37,5 mm
Air connection: $\varnothing 4$ mm

Cleaning: Wiping with disinfection solution.

Declarations with respect to EG machine directive.

Following is a translation from "Deklaration avseende EG maskindirektiv" of 2000-01-03.

All products manufactured by Medicvent AB is in compliance with the EG machinery directive, 89/392/EEG.

Products included are:

Complete ON/Off valve -set no: 18 00 00

As well as accessories to the equipment above.

These products complies with the following harmonized standards:

DIN EN 1012-1, DIN EN 1012-2, DIN 292 T1, DIN 292 T2,
DIN EN 294, DIN EN 563, DIN EN 60204-1, DIN EN 50081-2,
DIN EN 50082-2.

and the EMC guidelines 89/336/EEG that include requirements for radio-frequency emissions, EN 55011 and EN 55014 and requirements for ESD (Electrostatic Discharge), IEC 801-1 to 4. These standards and guidelines correspond to VDE 0843 part 1-4 and VDE 0875/N.

Umeå 2004-09-29
MEDICVENT AB


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Robert Lindkvist VD

Parts list

Art. no.	Part
180001:	On/Off valve
180002:	Autostart box
181010:	Mounting kit*

* In mounting kit 181010 the following is included.

Connector instrumental air 181003, tube 5/6 mm (3m) 181007 and tube 3/4 mm (3m) 181006.

Accessories:

181004	Connector breathing air (when it's not possible to use instrumental air).
142030	Filter holder LP10.



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